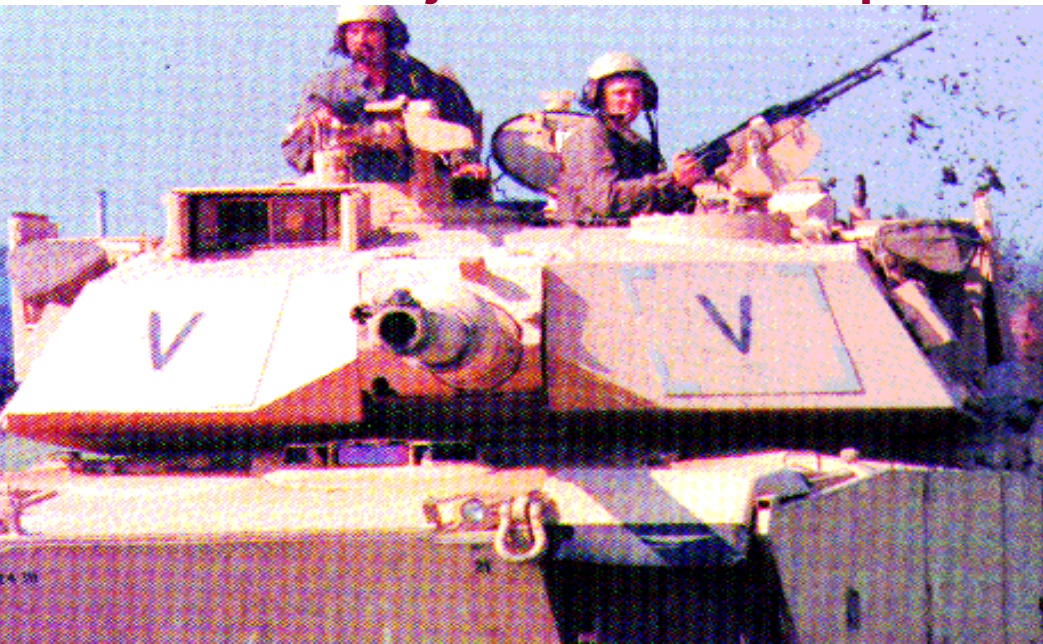


# WARSIM Program

## Description and Vision

JSIMS is the next generation simulation system for 21st Century Warfighter readiness. WARSIM 2000 satisfies JSIMS requirements as the Land Component and provides a realistic joint battlespace training environment

for the performance of Army tasks based on doctrine and requirements.



# WHY WARSIM?

- Enhanced Realism
  - » Support Army XXI Roles/Missions
  - » Comprehensive Environmental Effects (Standard Terrain Products and Direct Fire Line of Sight)
  - » Richer INTEL (WIM) & CSS/CS Representation
- Reduced Operational Support Requirements
- Seamless Interface Between Simulation and Training Audience Via Their Organic TO&E C4I Equipment
- Enhanced Automated Forces
  - » More Realistic Company Level Behaviors
- Greatly Improved Workstation Interface
- System Features:
  - » Rapid Scenario Generation
  - » Integrated AAR & Evaluation
- Event Based (Better Portrayal of Sensor-Shooter)
- Extensible Architecture
  - » Linkage to CCTT & Live/CTC Units by FOC
  - » Distributed/Scaleable System

# Operational Summary

## Simulation System to Create Realistic Environment for Command and Staff Exercises

- Field Units and Institutions
- Battalion to Theater
- Command Post Exercises
- Seminar Exercises
- Training
- Leader Development



## Supports:

- Full operational continuum
- Full cycle force projection operations
- Realistic effects of environment, units, equipment capabilities, and weapons effects
- Battlefield Functional Area (BFA) synchronization
- Reduced overhead in exercise preparation, set up, and operation



## Interoperates with:

- Unit organic Army Battle Command System (C4I)
- Live, virtual, and constructive simulations (Army and other Services)



# Operational Scenarios

**Combat**



**Disaster Relief**



**HAITIAN SEA RESCUE**

**Peace Enforcement/  
Peacekeeping**

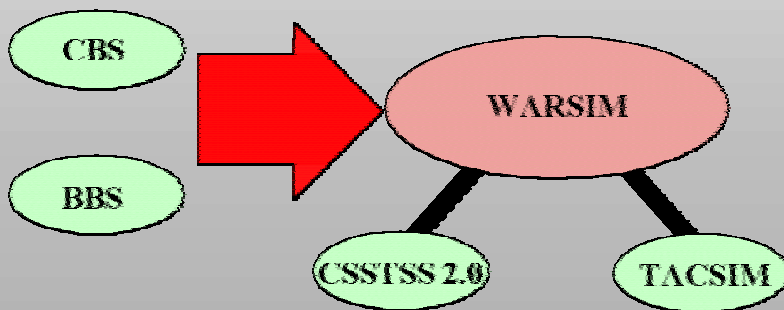


**Non-combat**

# WARSIM Evolution

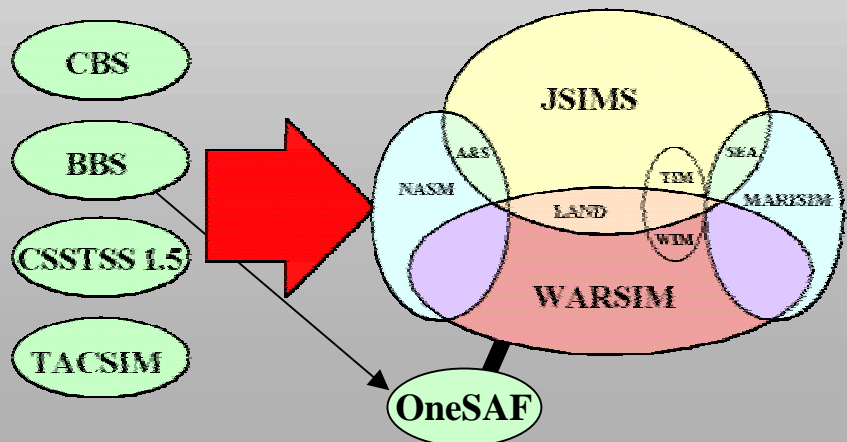
## Original Baseline

- **Replace CBS and BBS**
  - Reduce roleplayers & controllers
  - Add Pre & Post Conflict, OOTW, and Contingency Operation training capability
  - Provide entity resolution
  - Achieve seamless C4I interface
  - Link to virtual & live domains
- **Link to TACSIM and CSSTSS 2.0**
- **Minimal FDB scope**

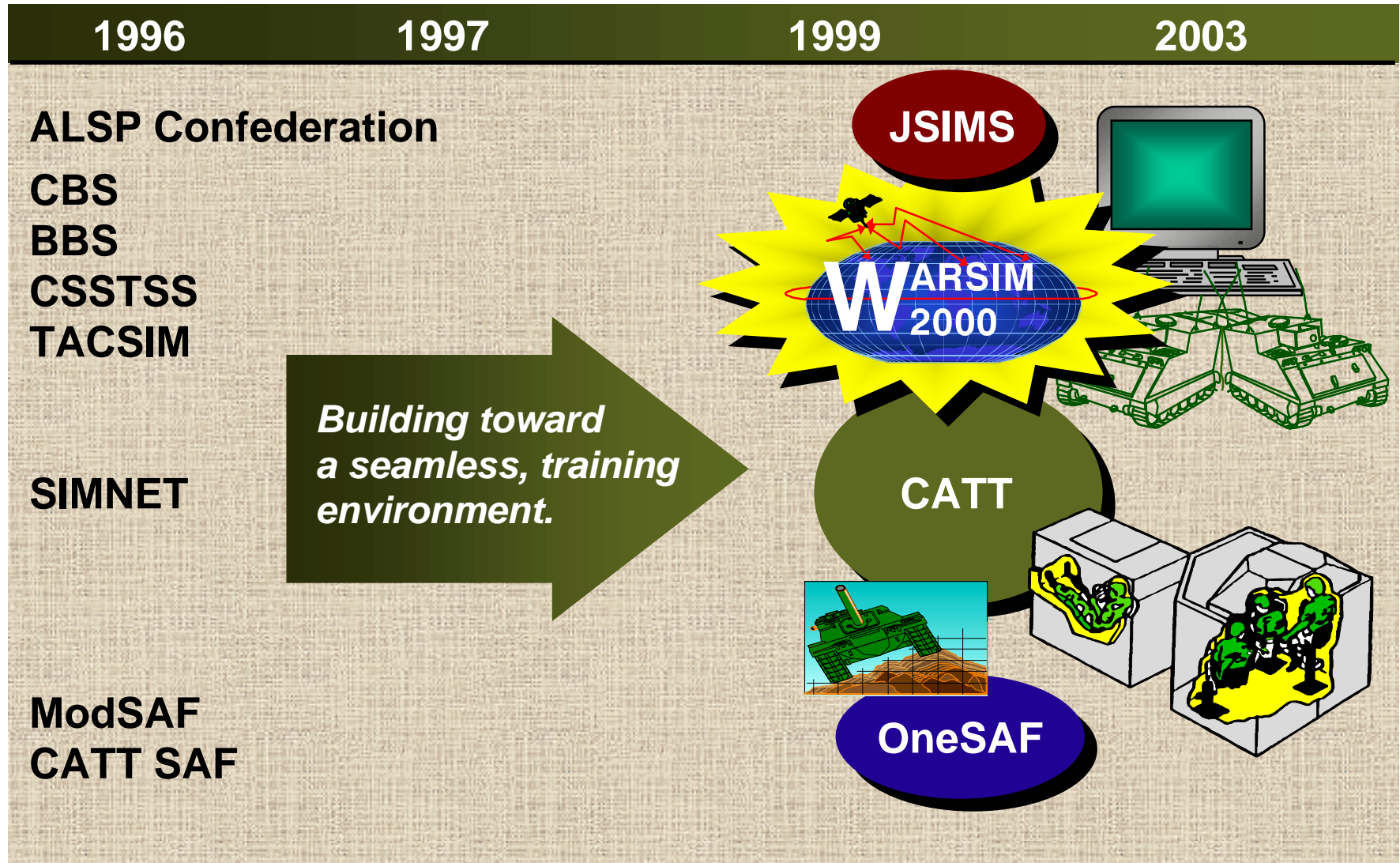


## Revised Baseline

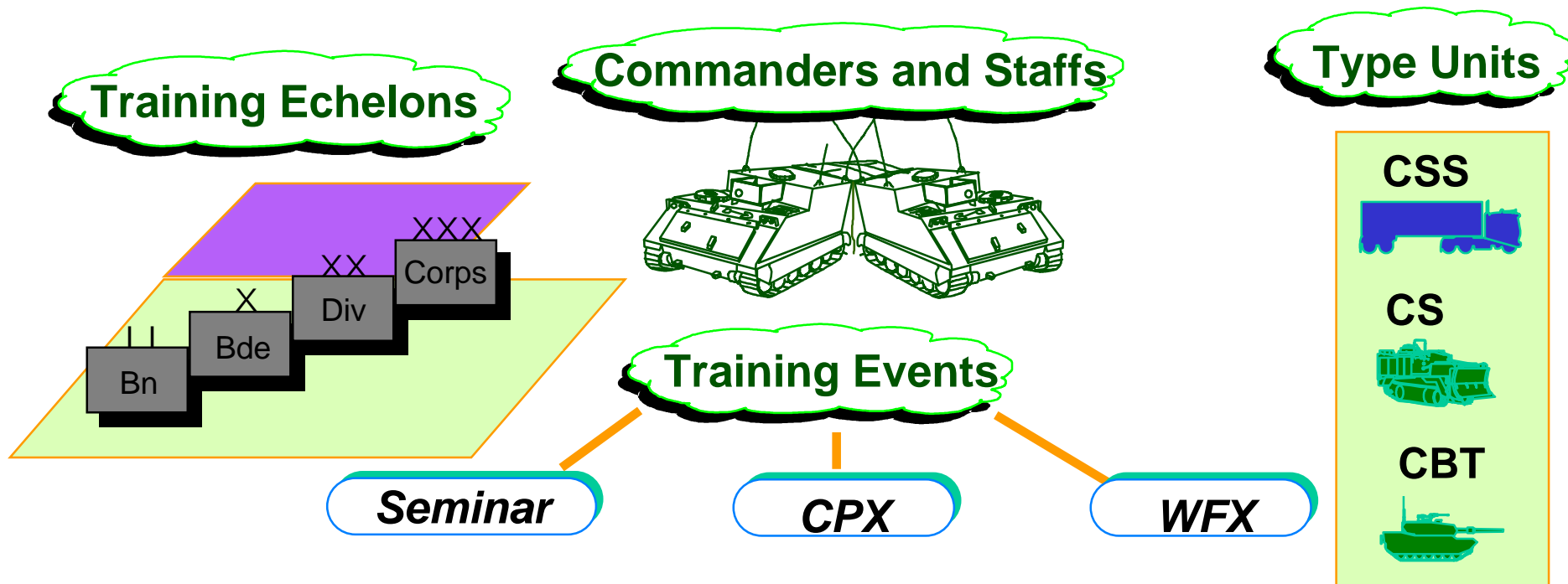
- **Replace CBS, TACSIM, CSSTSS, and BBS**
  - CSSTSS 2.0 T4C; embody CSSTSS 2.0 (+) functionality in WARSIM
  - Decision to develop WIM for Intel functionality
  - Provide EUI capability at Ft Hood (CTSF)
  - Annual block upgrades/deliveries
- **Provide Land Component Functionality for JSIMS Enterprise and use JSIMS Core Infrastructure**
- **Enhance FDB scope**



# Army Training with Simulation Strategy



# WARSIM 2000 Training Focus



**Mobilization  
Deployment**

**Entry  
(Air, Land, Sea)**

**Defeat Mechanism  
(Low, Mid, High)**

**Redeployment**

*Replacement for:  
(in priority order)*

*CBS, TACSIM, CSSTSS, BBS*

# Training with WARSIM

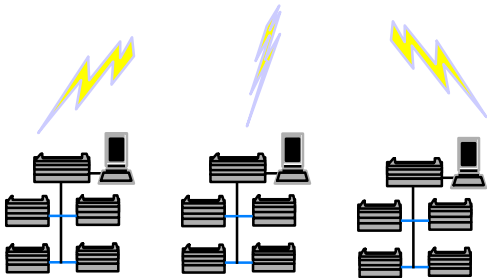
## Training the “Analog” Army

Published MTPs, ARTEPs...

Current C4RDP

Current Force Structures

Surrogate C<sup>4</sup>I Interface



C4I Surrogates & Workstations  
FOC: Voice I/O

## WARSIM 2000

- Commanders define unit training objectives
- Training objectives translate to **TASKS** and events for WARSIM
- Scenario created to support training objectives (TTPs) within the WARSIM capabilities.



- Seamless **INTERFACE**
- AAR Products tailored to training objectives

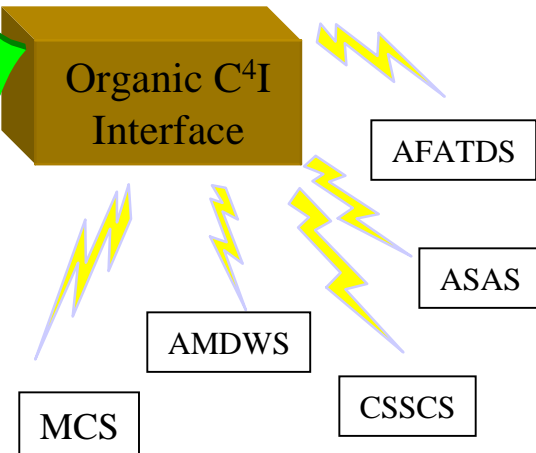
## Training the “Digital” Army

Draft Force XXI  
MTPs, TTPs....

Force XXI Operational  
Architecture.

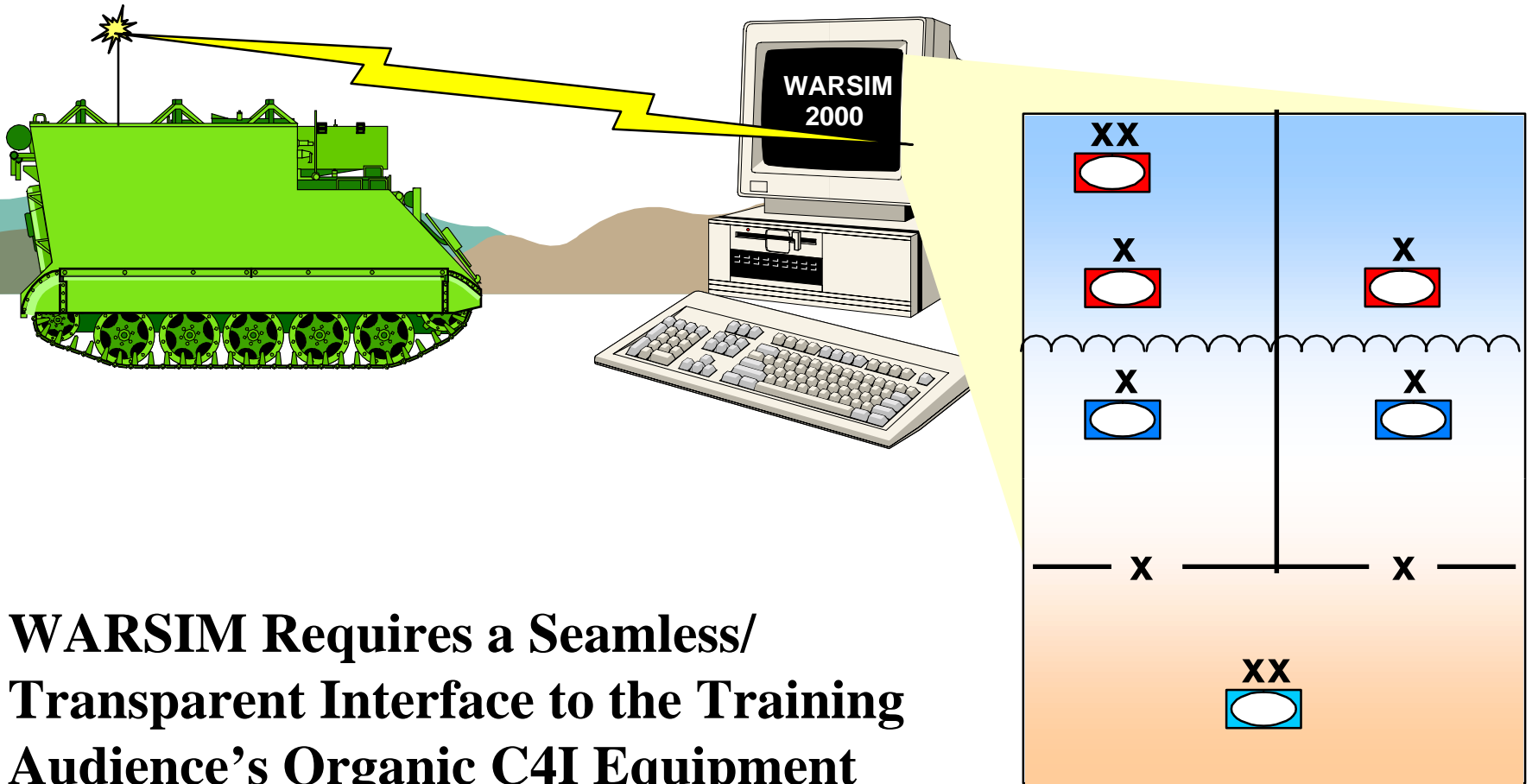
Force XXI Structures

Organic C<sup>4</sup>I  
Interface



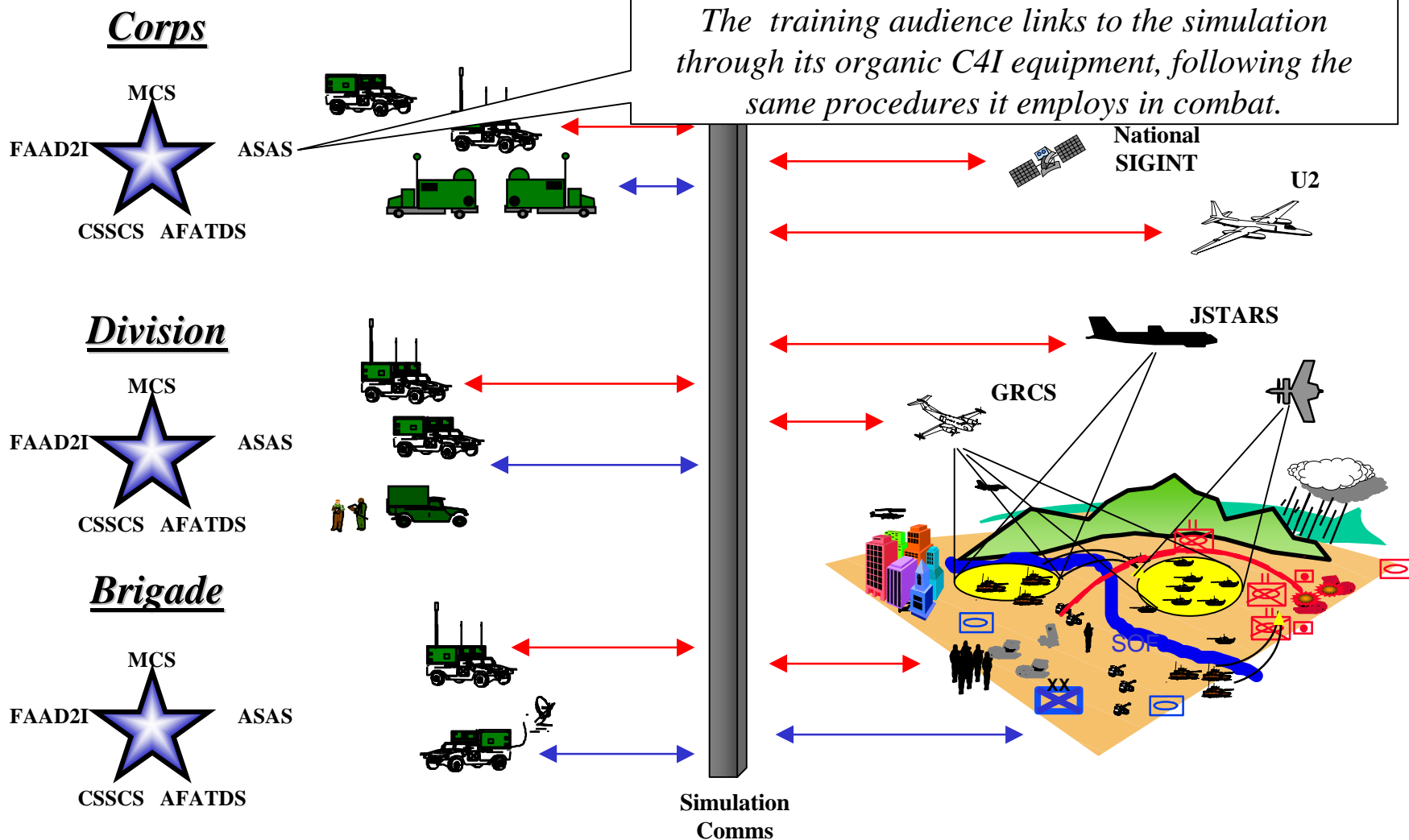
# WARSIM 2000

## C4I REQUIREMENT



**WARSIM Requires a Seamless/  
Transparent Interface to the Training  
Audience's Organic C4I Equipment**

# C4I Equipment Interfacing



# Synthetic Natural Environment (SNE)

**Purpose:** To provide a valid software representation of the environment for Joint/Service Command and Staff simulation training exercises.

## Development Strategy:

- Build from common integrated design to facilitate efficient integration (Given requirements and funding, Land DA is capable of building entire SNE).
- Maximize reuse of existing data/standards and products
- Apply experienced teams from STOW (LMIS, TASC, SAIC).

**Developer:**Land DA (Managed by JSIMS SNE WIPT)



	Build 1	Build 2	Version 1.0 - IOC
Functionality	<p>1 Database ;SWA (1x1 deg cell as min) with:</p> <ul style="list-style-type: none"> <li>■ Terrain Skin</li> <li>■ Surface Type (GO, Slow-go, No-GO)</li> <li>■ Simple Route Planning support,</li> <li>■ Some terrain editing (attribute changes)</li> <li>■ Scenario Control (environment)</li> </ul>	<p>1 full dbase with B1 plus:</p> <ul style="list-style-type: none"> <li>■ Bridges</li> <li>■ Urban area/Forest</li> <li>■ Roads/Rivers/Lakes, Railroads</li> <li>■ Surface types (enhanced w/ NIMA data)</li> <li>■ Dynamic Terrain/Engineering Obstacles</li> <li>■ Ocean Surface</li> <li>■ Line-of-sight</li> <li>■ Avenues of Approach</li> <li>■ Enhanced Route planning support</li> <li>■ Time Of Day</li> <li>■ Partial Man-made structures (MMS) Upgrade/Downgrade support</li> <li>■ Some Ocean/Littoral</li> <li>■ Some Atmosphere/Weather</li> </ul>	<p>2 full dbases (SWA&amp;SWUS) with B2 plus:</p> <ul style="list-style-type: none"> <li>■ LANDSAT imagery</li> <li>■ Enhanced Map generation capability</li> <li>■ Full MMS Upgrade/Downgrade support</li> <li>■ Collision Detection</li> <li>■ Smoke, Dust (munitions based only), surface wind &amp; Air stability</li> </ul>

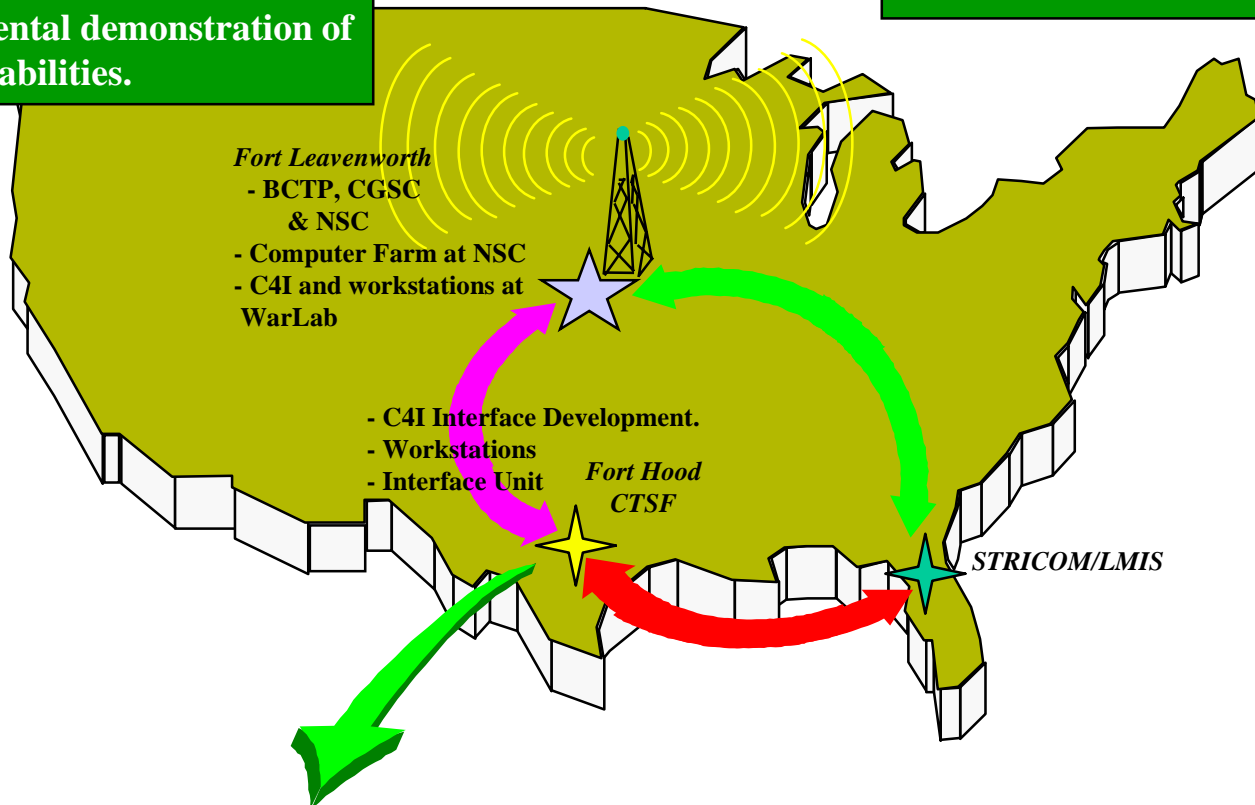
# Early User Interaction

## FEATURES:

- Centralized Computing Power.
- Distributed User Interface.
- Early, Incremental demonstration of simulation capabilities.

## FOCUS:

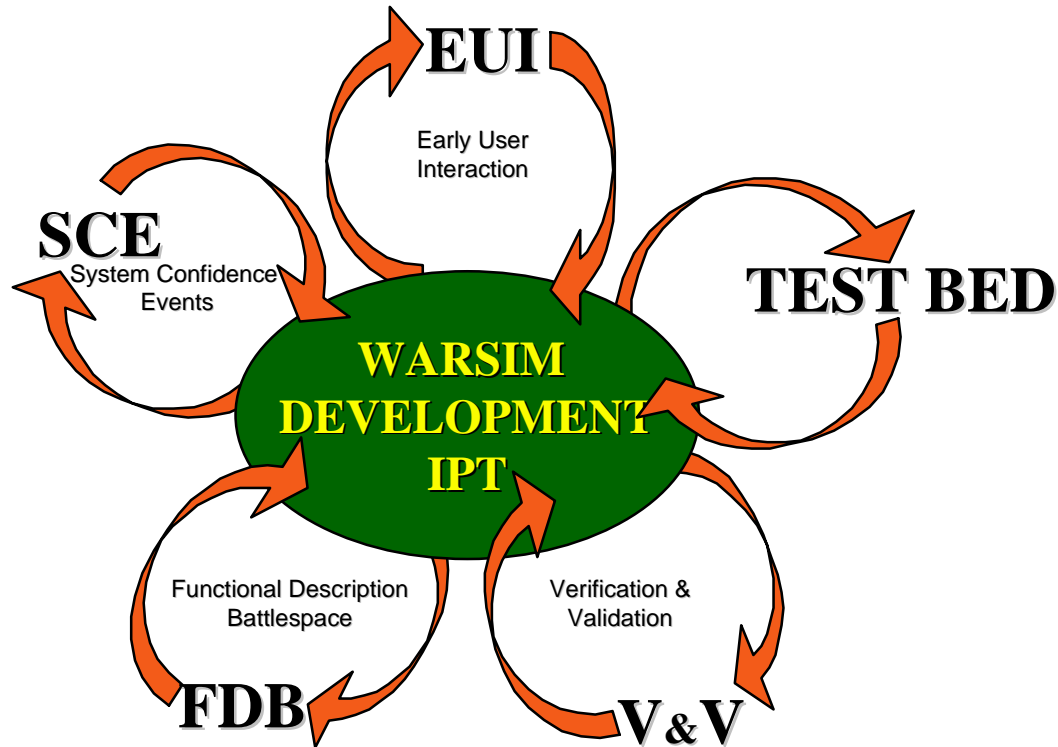
Provide the Means for Structured, Continuous Feedback.



*Broadest Possible Customer Base  
Providing Earliest Possible Feedback.*

# WARSIM 2000

## Continuous User Feedback and Evaluation

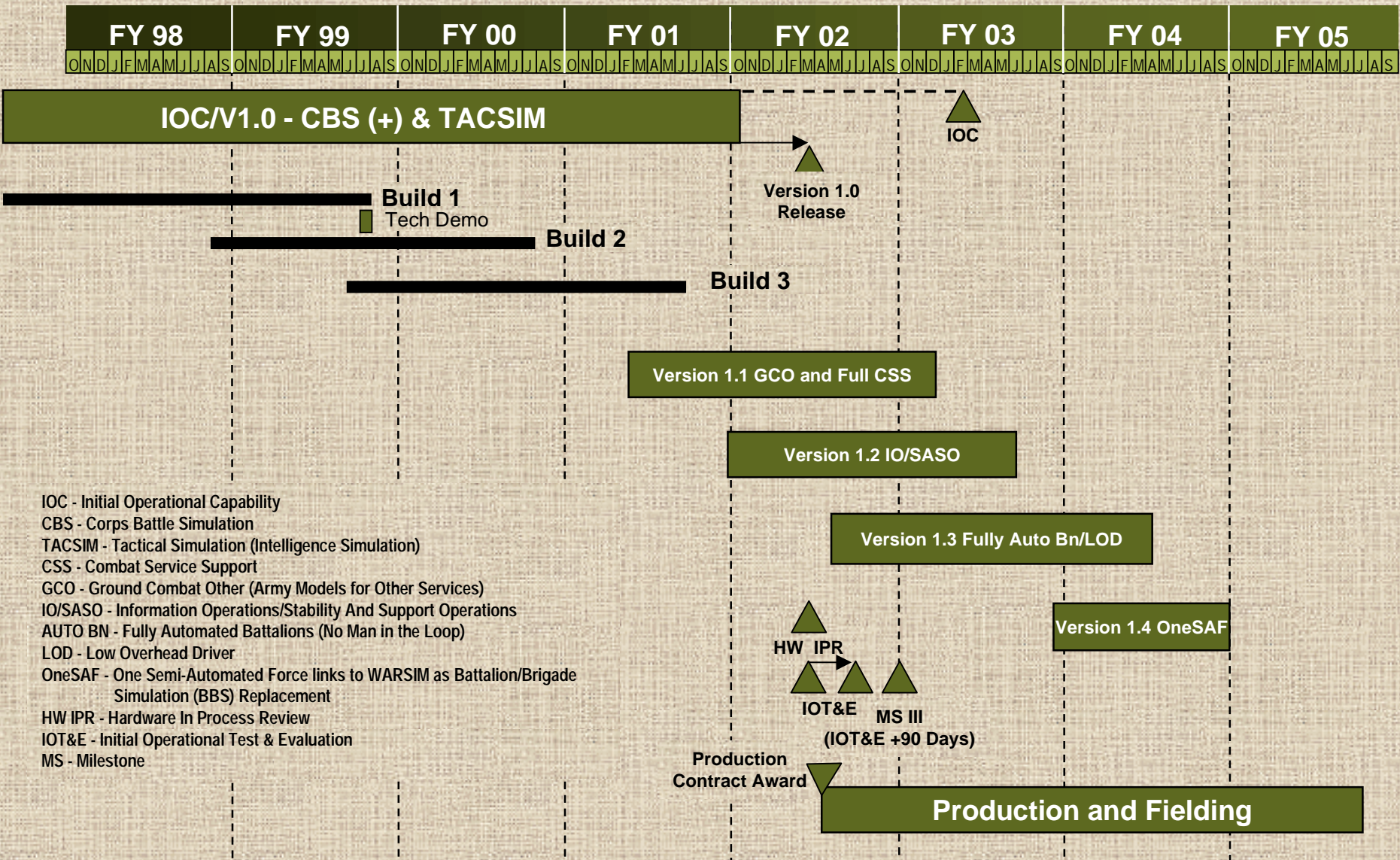


# EUI Concept/Goal

- The goal of EUI is to involve the user community in the WARSIM development process from the initial builds through delivery of a fully functional system. The objective of this concept is four fold:
  - Obtain structured, controlled and continuous feedback on system functionality and user interface methods particularly C4I interface.
  - Educate future training audiences/users/testers on the capabilities and limitations of the WARSIM system.
  - Leverage operational feedback.
  - Establish an environment of shared ownership.

# Revised WARSIM Program Schedule

As of 06 October 00



# The Functional Description of the Battlespace (FDB)

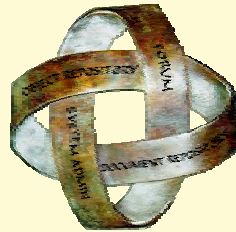
Requirements  
Definition

## Real World



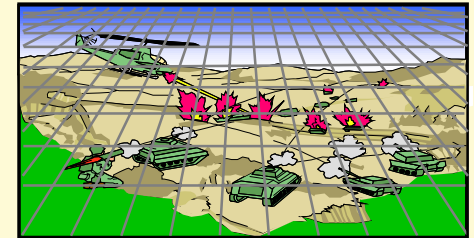
- Tactics, Techniques, Procedures
- Equipment
- Organizations

## Functional Description of the Battlespace



- The Army On-Line
- Electronic Library
- Information Sharing

## WARSIM 2000



- Task Based Training
- Submersion of Training Audience

Validation

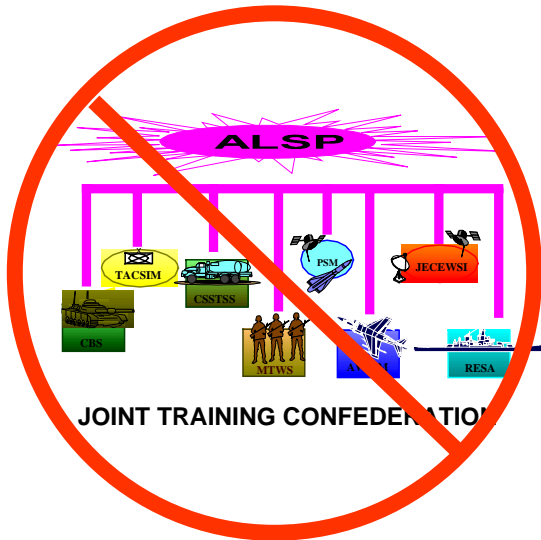
Traceability to  
Doctrinal Sources



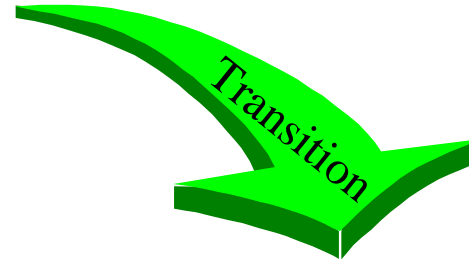
Military Subject  
Matter Experts

*The FDB provides the library of information on Army Equipment, Operations and Staff relationships required by Simulation Developers.*

# Joint Simulation System (JSIMS) - Next Generation Joint C2 Simulation



**Dissimilar Architectures**



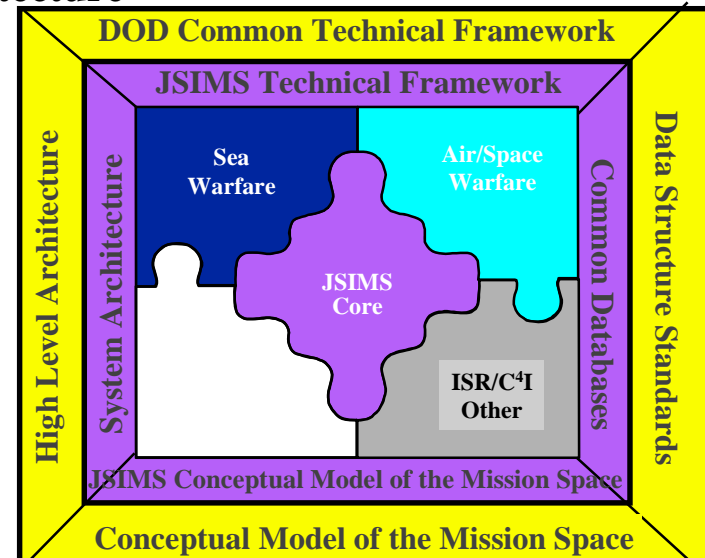
**Common Core Architecture**

**WARSIM will be the primary contributor to the Land Warfare battlespace domain within the JSIMS simulation environment.**

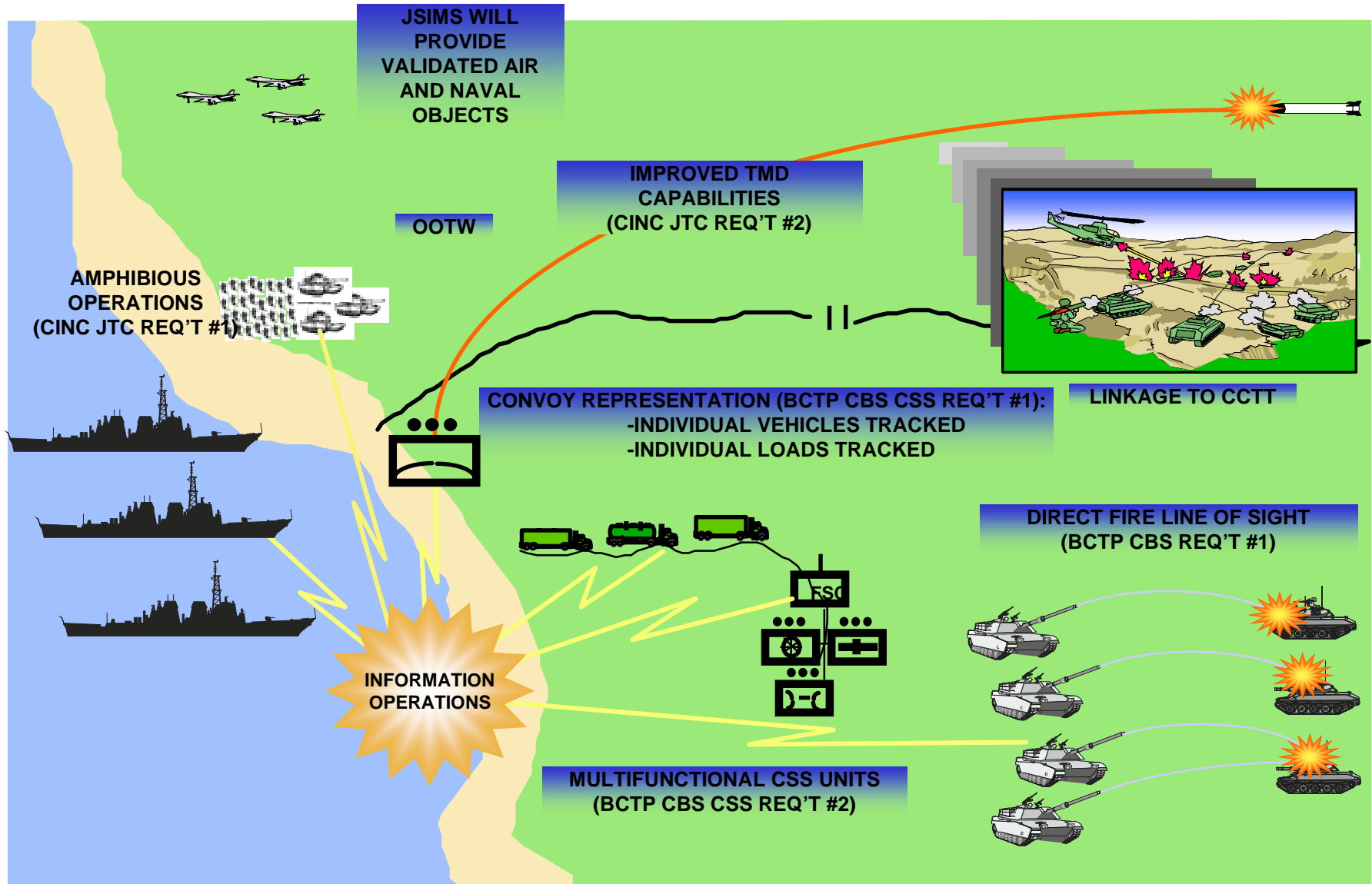
**Army is building 50-70% of total Enterprise software**



**JSIMS will provide the system architecture (standards, HLA interface, common software, and core services) for all JSIMS Enterprise Partners.**



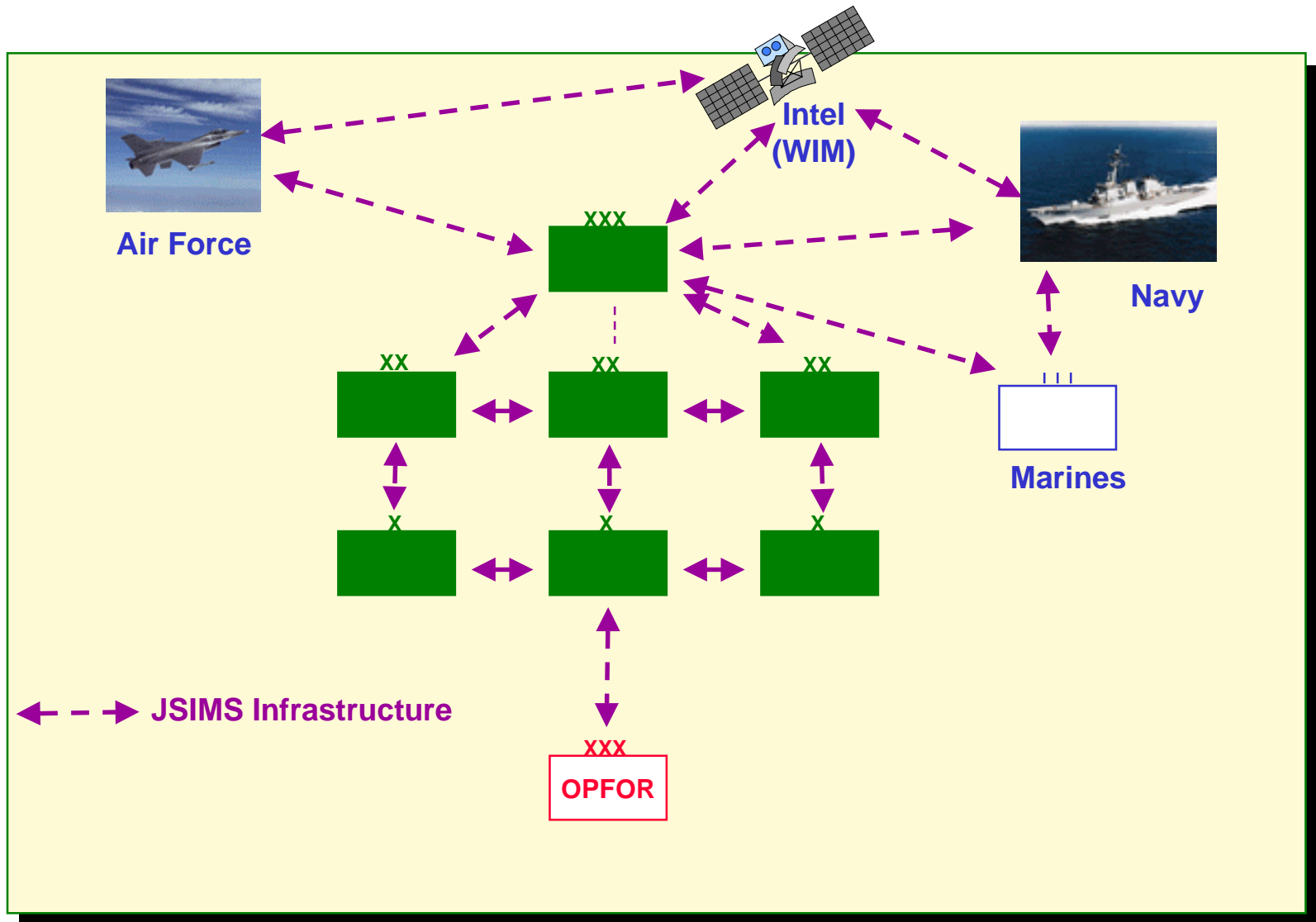
# WARSIM 2000/JSIMS Training Improvements



# Army Relationship to JSIMS Alliance

- **The JSIMS Alliance provides:**
  - **Simulation Infrastructure**
    - ‡ Provides functionality to create, control, monitor, and AAR an exercise.
    - ‡ Allows interactions between battlefield entities.
  - **Air and Space Entities**
    - ‡ Fixed Wing Aircraft and Satellites.
  - **Maritime Entities**
    - ‡ Ships
- **The Army provides to the JSIMS Alliance:**
  - **Land Entities**
    - ‡ Army Units and Equipment
    - ‡ Marine Corps Units and Equipment
    - ‡ Air Force and USN Land Representations
  - **Synthetic Environment**
    - ‡ Terrain, Atmosphere, Ocean
    - ‡ Man Made Structures

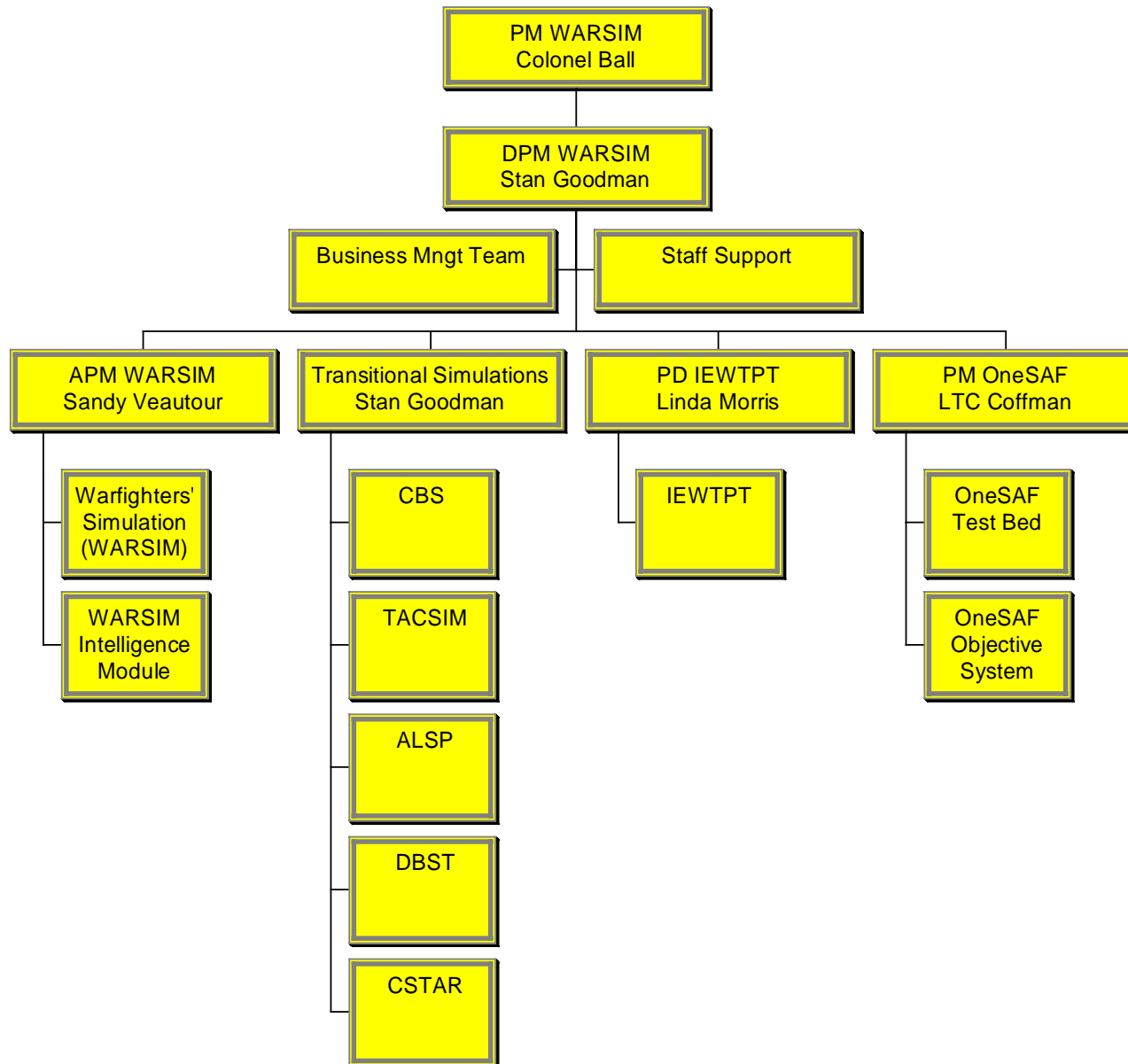
# Army Relationship to JSIMS Alliance



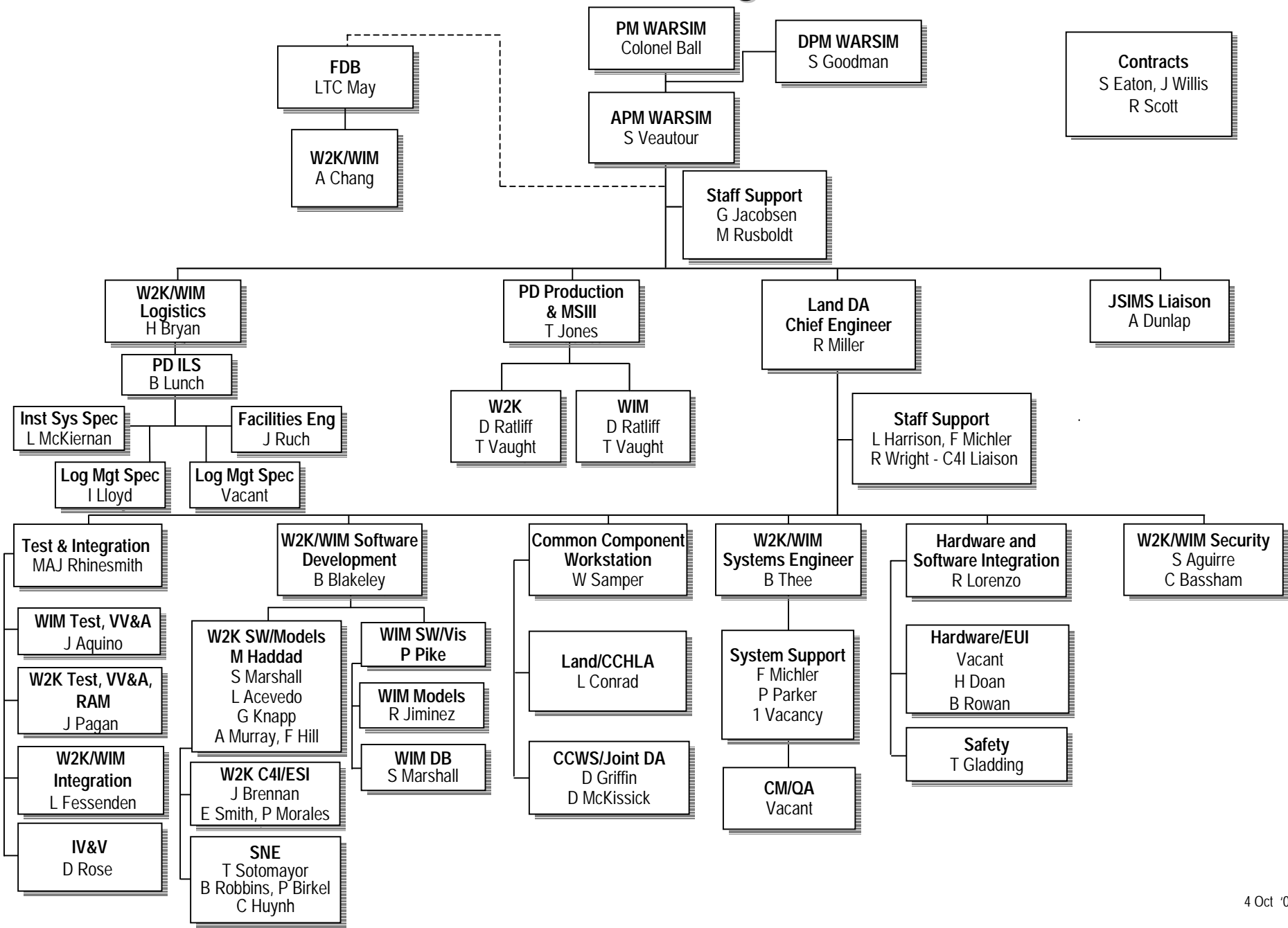
# WARSIM 2000 Team



# PM WARSIM Organization



# APM WARSIM/WIM Organization Chart



# W

WARFIGHTERS

# A

# A

# S

SIMULATION

# I

# M

# 2000

## Force XXI Combat Environment

- ★ Ambiguous and Unpredictable Threats
- ★ Operation Other Than War
- ★ CONUS-Based Army
- ★ Rapid Deployment
- ★ Full Operational Continuum
- ★ High Intensity Conflicts
- ★ Real Time Situational Awareness
- ★ Joint and Coalition Task Forces

## Training Requirement

- ★ Battalion to Theater
- ★ Field Units and Institutions
- ★ Support Training at Home Station or While Deployed
- ★ Full Operational Continuum
- ★ Interoperates with Army Battle Command Systems
- ★ Link to Live, Virtual and Constructive Simulations (Army/Joint)



DEPLOYED UNITS

RTC - Regional Training Center  
BSC - Battle Simulation Center  
CPIM - Command Post Interface Module

## WARSIM: IMPROVED TRAINING CAPABILITY TO PREPARE FOR OPERATIONS

### Scenario Preparation

- ★ Increased Flexibility meets Commander's Needs
- ★ Composable Simulation
- ★ Lead Time-Weeks
- ★ Terrain Generation Tool
- ★ Scenario Libraries
- ★ Editing Tools
- ★ Greatly Improved Workstation Interfaces

### Training Exercise

- ★ Joint Operation - Accredited Models of All Services
- ★ Automated C4I Interfaces
- ★ Distributed Operations
- ★ Exercises from Field
- ★ Greatly Reduced Support Personnel
- ★ Realistic Behaviors

### After Action Report

- ★ Available 2 Hours After Exercise
- ★ Tailorable to Commander's Needs
- ★ Automated Data Collection and Tools

### Army Battle Command System (ABCS) Integration

- ★ Support for all C2 message types
- ★ Interoperable database
- ★ WARSIM/ABCS prototype